

32
4. (Amended) A semiconductor laser device according to claim 2, wherein said spacer layer has a p-type electrical conductivity, and a carrier concentration at said interface between said spacer layer and said optical guide layer is more than $5 \times 10^{16} \text{ cm}^{-3}$ and less than $5 \times 10^{17} \text{ cm}^{-3}$.

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6. (Amended) A method of manufacturing a semiconductor laser device, comprising the steps of sequentially forming, on an n-type substrate, an n-type doped buffer layer, an n-type doped cladding layer, a first undoped optical guide layer, an undoped quantum well active layer, a second undoped optical guide layer, p-type doped cladding layer, and a p-type doped cap layer by vapor phase growth method, further comprising:

forming an undoped spacer layer between said second undoped optical guide layer and said p-type doped cladding layer,

wherein an interface is formed between said spacer layer and said second undoped optical guide layer.

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17. (Amended) The method of manufacturing a semiconductor laser device of claim 16, wherein said stripe-shaped ridge has a width of 2 - 3 μm .

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19. (Amended) The method of manufacturing a semiconductor laser device of claim 18, wherein said stripe-shaped ridge has a width of 4 - 5 μm .

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contd.

20. (Amended) The method of manufacturing a semiconductor laser device of claim 18, wherein said step of forming an n-type current block layer comprises forming an n-type electric current block layer and said n-type current block layer.

21. (Amended) The method of manufacturing a semiconductor laser device of claim 20, wherein said stripe-shaped ridge has a width of 2 - 2.5 μm .

Please add the following new claims:

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23. (New) A semiconductor laser device having a quantum well active layer disposed between a pair of cladding layers and an optical guide layer disposed between at least one of the cladding layers and the quantum well active layer,

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wherein

a spacer layer consisting of a single layer of a thickness of 5 nm or more but below 10 nm is disposed between the optical guide layer and a p-type cladding layer, the spacer layer being in contact with both the optical guide layer and the p-type cladding layer.

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24. (New) A semiconductor laser device according to claim 13, wherein said spacer layer has a p-type electrical conductivity, and a carrier concentration at an interface between said spacer layer and said optical guide layer is more than $5 \times 10^{16} \text{ cm}^{-3}$ but less than $5 \times 10^{17} \text{ cm}^{-3}$.

17 ~~25~~. (New) A semiconductor laser device having a quantum well active layer disposed between a pair of cladding layers and an optical guide layer disposed between at least one of the cladding layers and the quantum well active layer, wherein

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a spacer layer consisting of a single layer and having a p-type electrical conductivity is disposed between the optical guide layer and a p-type cladding layer, the spacer layer being in contact with both the optical guide layer and the p-type cladding layer, and a carrier concentration at an interface between the spacer layer and the optical guide layer is more than $5 \times 10^{16} \text{ cm}^{-3}$ but less than $5 \times 10^{17} \text{ cm}^{-3}$.

15 ~~26~~. (New) A semiconductor laser device according to claim ¹³~~23~~, wherein said p-type cladding layer has a carrier concentration in a range of from $8 \times 10^{17} \text{ cm}^{-3}$ to $5 \times 10^{18} \text{ cm}^{-3}$.

18 ~~27~~. (New) A semiconductor laser device according to claim ¹⁷~~25~~, wherein said p-type cladding layer has a carrier concentration in a range of from $8 \times 10^{17} \text{ cm}^{-3}$ to $5 \times 10^{18} \text{ cm}^{-3}$.

16 ~~28~~. (New) A semiconductor laser device according to claims ¹³~~23~~, wherein said spacer layer has a composition identical to that of said p-type cladding layer or is larger than said p-type cladding layer in band gap.

19 29. (New) A semiconductor laser device according to claims 25, wherein said spacer layer has a composition identical to that of said p-type cladding layer or is larger than said p-type cladding layer in band gap.

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30. (New) A method of manufacturing a semiconductor laser device, comprising the steps of sequentially forming, on an n-type substrate, an n-type doped buffer layer, an n-type doped cladding layer, a first undoped optical guide layer, an undoped quantum well active layer, a second undoped optical guide layer, p-type doped cladding layer, and a p-type doped cap layer by a vapor phase growth method, comprising:

forming an undoped spacer layer consisting of a single layer of a thickness of 5 nm or more but below 10 nm between said second undoped optical guide layer and said p-type doped cladding layer in such a manner that said spacer layer is in contact with said second undoped optical guide layer and said p-type doped cladding layer.

31. (New) A method of manufacturing a semiconductor laser device according to claim 30, wherein each of said layers is formed by a MOCVD method and under a condition in which a growth temperature is from 650°C to 800°C both inclusive, and a ratio of a feed rate of a group V source to that of a group III source is from 50 to 200 both inclusive.